

Mar. 80

Lakehead amateur radio club
HIGH-Q

NEXT MEETING
MARCH 13 8PM EMO BUILDING

This will be the first real business meeting in two months. Last month the club held the annual dinner meeting at the Royal Edward Hotel. A good attendance was recorded with both hams and their guests enjoying the meal. It was good to see VE3-DGZ there to present the FICKLE FINGER AWARD to its new owner. We were also treated to some slides and films of the clubs activities over the past few month. After the meeting, there was a transmitter hunt. The wives and their ham husbands tried to find a hidden BC band transmitter somewhere in the room.

Every month we ask for contributions to HI-Q. This month we called Bob VE3-KRL to give us a report on the Cross Country Ski Tour that he was involved in. Not only did Bob come through with a report, but had it at our QTH within an hour. There should be some award for this. Bob holds the record for the fastest reply to our sometime pleading requests.

If your are looking for the NORTHWESTERN ONTARIO PHONE NET, try looking for it fifteen minutes later than usual. The net time has been changed to 00:30 UTC. This gives the western checkinss a bit more time to finish supper before net time. They are in the central time zone so this puts them right in the supper hour. The spot remains the same..... 3750 kcs.

From the local DOC, here is a losting of the latest new hams that have joined our hobby in the past few months

VE3-LMF	John Stadlander	199 Academy Drive, T. Bay
VE3-LME	Ivan Sherlock	110 Margaret st/ T. Bay
VE3-LMD	Jean Marc Klein	RR#3 T. Bay
VE3-LMC	Colin MacKay	Red Rock
VE3-LMW	Walter Melnick	
VE3-LMQ	Scott Kantymir	435 Amythest Cr. T. Bay
VE3-RCN	HMCS VINDICTIVE,	Royal Canadian Navy, T. Bay

MARCH 11-8

NEW REGULATIONS FOR CANADIAN HAMS

The Canadian Department of Communications has released the following information regarding changes in the radio regulations affecting the Canadian Amateur. Dated February 28, 1980.

1. Canadian Amateurs have lost 420 - 430 mhz, while retaining 430 - 450. A new band has been picked up on 902 - 928 mhz. A3 & F3.
2. Deletion of log keeping requirements for mobile operation.
3. Rephrasing of provisions dealing with frequency measuring devices.
4. Deletion of certain requirements dealing with portable operation and with mobile operation
5. Permit the use of A3 operation of 7050 - 7100 khz.
6. Permit holder of amateur class to operate after 6 month using F1 between 3.5 & 28.1 and A3 emission in 1.8 mhz to 2. mhz

SIX METER BEACON via NORTECS

VE3-RDL signed on in mid December as a new Canadian 6 meter beacon. It transmits 24 hours a day on 50.077 mhz using 10 watts CW into a Cushcraft Squalo omnidirectional horizontally polarized antenna at 130ft. So far reports have been received from all parts of North America. Its CW is.....VE3-RDL VE3-RDL VE3-RDL BEACON TORONTO QSL TO VE3-WL AR. This is sent at 13 wpm with a 5 sec pause in transmissions. With the sunspot activity the way it is 6 meters is a good bet. Try it.

POSSIBLE CHINA OPERATION

ZL1-ADI and ZL1-AMC hope to operate from China Projected dates are late February or early March. Give a listen for them. (HR Report)

GOINGGOING ...AND ALMOST GONE

Still left from original batch of 12....one only EICO Model 460 oscilloscope, DC to 4.5 mhz with 5 inch CRT, each unit checked out operational, calibrated with service data operating instructions and cables. Price is \$75.00 plus \$5.25 for CST. Call Dave Kimpton at home 344-8949 or school 266-0661.

EXAM TIME

The next scheduled DOB Examination for prospective hams or those wishing to upgrade, will be on April 16. You are required to phone in and make an appointment for these examinations. The next one will probably not be scheduled until July.

DX ANYONE?

If you are an avid DX fiend, you might like to get this new publication. IT is "QRZ DX", a new weekly DX new sheet that is edited by K5FUV. Subscriptions are \$7 (U.S.) per quarter. Write to Box 494, Howe, Texas. 75059.

MARCH HI - Q

BASIC

DIGITAL

Due to business committments for this month this article will be somewhat shorter than planned, however next month we should be back to a regular schedule.

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T.T.L. or Transistor - Transistor Logic, as mentioned last month is probably the most common of digital circuit families. Within this family there are many types and classifications, depending upon speed of operation, power requirements, etc. but first a few definitions.

FAN - IN: TTL gates have to have their inputs pulled LOW to function. A standard input is one requiring the driving device to sink 1.6 mA to result in a LOW input. This standard input is referred to as having a FAN-IN of 1.

A FAN-IN of 2 would indicate that the driving device would be required to sink 3.2 mA to pull the input low.

In TTL circuitry then we could say that FAN-IN is the number assigned to the device to indicate the amount of current the driving device is required to sink (x's 1.6 mA).

FAN - OUT: The driving capability of an I.C. This number represents the number of standard inputs (loads) which may be connected to the device. For TTL logic a typical FAN-OUT would be 10.

An I.C. with a fan - out of 10 would be able then to sink 10 standard input I.C.'s, each with a fan - in of 1 for a total load of 16mA. Only 5 ic's each with a fan-in of 2 could be driven by this device.

The FAN-IN/ FAN-OUT values are normally listed in the manufacturers handbooks, for example the National Semiconductor TTL DATA Book indicates that a series DM 54/74 IC will be capable of driving 10 DM54/74 series ICs or 40 DM54L/74L series ICs.

The 54L/74L series mentioned above are one type of IC within the TTL family. These device are LOW POWER types and as you can see by the FAN-In number, about 4 times more of these devices may be connected to the standard IC as they require approx. $\frac{1}{4}$ the current.

Power supply requirements would also be reduced using this type, however the low power devices are usually slower in operation than the standard type which could limit their use.

The standard TTL device operates to approx. 35 mHz for a flip - flop. This speed may be to slow for many instruments so a HIGH SPEED device has been designed. This high speed IC will operate at least twice the speed of a standard unit. The high speed device will draw more power therefore limiting the number which may be connected to the standard IC. A DM54/74 would be capable of driving 8 DM54H/74H series ICs.

The SCHOTTKY and LOW POWER SCHOTTKY TTL devices are designed to improve speed and power dissipation over the standard TTL IC.

SUMMARY

74 indicates commercial temp. range (0°C - 70°C)

54 " military temp. range (- 55°C - + 125°C)

MARCH HI - Q

BASIC DIGITAL cont'd

no letter i.e. 54/74 indicates standard speed
54L/74L low power series (one tenth to $\frac{1}{2}$ standard pwr.)
54LS/74LS low pwr. Schottky(about one fifth pwr, same speed
54H/74H high speed
54S/74S high speed schottky

I.C. Identification.

I.C.'s can be identified by various methods such as power supply requirements, HI and LOW levels, numbering systems etc.
For example, TTL logic series have a voltage supply of + 5 vdc and 0 vdc for VCC and ground. A high logic level of from 2 to 5 volts and a low logic level of 0 to 0.8 volts. Other logic families may also use similar voltage levels, so be wary of using ONLY voltage levels as a source of identification.

TTL series can be readily identified by the part number. This number represents; manufacturer, temp. range, the sub-family, type of gate, and the package.

EXAMPLE: What is a SN74LS02N type IC?

The SN indicates the manufacturer Texas Instruments
" 74 " " temperature commercial 0 to 70°C
" 54 " " range military -55 to + 125°C
" LS " " Low power Schottky
" 02 " " QUAD (4) input NOR gate.
" N " " a plastic package.

a 7400 standard TTL -- Quad 2 - input NAND gate.
7404 HEX Inverter
74H04 HEX Inverter High speed.

On most ICs and many other linear type integrated circuits you will find two sets of numbers, one set represents the TYPE of IC as explained above and the second gives the date and week of manufacture. This second number must not be confused with the part number. It consists of 4 numbers such as 7438 or 7816 etc. Briefly these numbers represent the year and week of production as follows:

7438 year 1974 and the 38 th week

7816 year 1978 and the 16 th week.

PACKAGING.

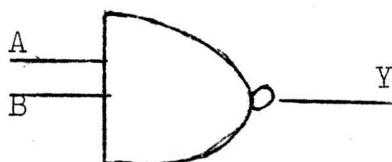
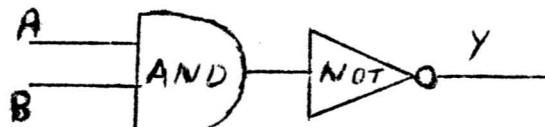
The most common package is the plastic DIP or Dual In line Package. Most commonly come with 8, 14, 16, 18, 20, 22, 24, 28, and 40 pins. The pin number 1 is normally identified by a notch, a dimple or similar marking. Pins are numbered in a clockwise direction looking from the TOP.

MARCH HI - Q

BASIC DIGITAL cont'd

The NAND gate

SYMBOL



NAND GATE

TRUTH TABLE

A	B	Y
L	L	H
L	H	H
H	L	H
H	H	L

The OR GATE



C	D	Y
L	L	L
L	H	H
H	L	H
H	H	H

When C OR D are high the output Y will be high.

THE NOR gate

SYMBOL



TRUTH TABLE.

A	B	Y
L	L	H
L	H	L
H	L	L
H	H	L

* * * * *

~~The following information is summarized up to by Les VX3-JAY.~~
The source of this information comes from the applications for
the special "VX" Award and also from Bob VE3-JAY dupe sheet.

At the time of this writing (February 20) 928 applications have
been processed by the awards chairman. The breakdown is as follows:

770 - U.S.A. 88 - Canadian 67 - DX 35 - SWL

Certificate #1 was issued to KP4-DQP, Benjamin Colucci. He worked
Bob VX3-JAY, Les VX3-JAY, and Sharon VX3-JAV, and was the first
to apply for the special award.

The VX call was used approximately 40,189 times. but this figure
is not final at this time. Those local hams who have not yet
supplied information can give it to Les VE3--JAJ so we can come up
with the total final figures.

The VX call showed up on applications 4,945 times up to certificate
#901. One person worked and recorded on his application 16
VX stations. One person worked all 5 VX3 stations in 8 minutes.
One American said that he tried to get through the pile-ups for
3 hours before finally getting through for his final #5 contact.

The certificate has been sent to 26 countries. They are Canada,
USA, Australia, Mexico, England, El Salvador, Panama, Ireland,
Netherlands, Puerto Rico, Republic of South Africa, Yugoslavia,
Sweden, France, New Zealand, Dominican Republic, Chile, Brazil,
West Germany, Netherland Antilles, Cook Islands, Barbados, Hungary,
Argentina, Nigeria and Korea.

Following is a breakdown of USA call areas and certificates sent:

AREA # 1 certificates	52		AREA #6 certificates	117
# 2	35		#7	90
# 3	24		#8	42
# 4	213		#9	37
# 5	129		#Ø	31

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THE "VX" AWARDcontinued

Following a breakdown of Canadian call areas:

VE1-	12 certificates	VE6-	7 certificates
VE2-	2	VE7-	20
VE3-	43	VE8-	1
VE4--	2	VO1-	1
VE5-	-		

By my (VE3-JAJ) count from HI-Q roster, there are 129 Amateurs inside the city of Thunder Bay. Of this total 58 amateurs were noted as using the special "VX" prefix, or 44.9%.

Following is a list of use of the prefix by local amateurs:

STATION CALL - NAME - TIMES "VX" CALL USED - ON CERTIFICATE -

% OF CONTACTS EVENTUALLY ON CERTIFICATE

ARN	Bill	--	62	---	HJS	Gary	720	264	36%
AXL	Phill	10	3	30%	HTM	John	50	23	46%
AYZ	Les	20	12	60%	HZW	Mike	350	79	22%
BCD	Lauri	12	1	8%	IDJ	Bob	2000	467	23%
CI	Jim	--	1	--	JAA	Arnold	50	23	46%
DBI	Harold	--	1	--	JAB	Bob	1619	26	2%
DGZ	J.C.	700	35	5%	JAF(VE)-Gary		--	3	-
DJD	Herman	--	1	--	JAH	Jim	250	81	32%
DP	Steve	60	33	55%	JAJ	Les	1250	305	24%
ECO	John	10	7	70%	JAQ	Dennis	2500	147	6%
ECV	Vic	150	75	50%	JAR	Vic	3600	359	10%
EDC	Jim	6500	148	2%	JAU	Glen	550	25	5%
EDW	Hugh	12	8	66%	JAV	Sharon	225	106	47%
EDZ	Ray	10	1	10%	JAW	Dianne	50	31	62%
EEG	Jim	1	1	100%	JAY	Bob	4865	559	12%
EEW	Tom	3500	357	10%	KRD	Jim	200	9	5%
EFA	John	3	3	100%	KRF	Jim	100	2	2%
EFC	Bill	100	49	49%	KRH	Steve	100	19	19%
EFV	Wolf	560	146	26%	KRI	Debbi	193	7	4%
EFZ	Ken	200	72	36%	KRJ	Ron	800	15	2%
EUL	Charlie	250	167	67%	KRL	Bob	750	153	20%
FW	Bob/Tom	500	7	1%	KRN	Stan	125	33	26%
HFS	Pat	3500	261	7%	KRO	Dan	20	5	25%

MARCH HI-Q

THE "VX" AWARDS CONTINUED

KRP	Ed	1157	197	17%	KRY	Dave	3	1	33%
KRQ	Gary	50	1	2%	LMB	Bob	-	2	--
KRU	Bob	270	174	64%	SEC	Fred Stan Scott	637	31	4%
KRV	Vlad	50	28	56%	XJ	Bill	1176	188	16%
KRW	Linda	5	1	20%	ZG	Mike	300	120	40%

The % figures were rounded off to the nearest full number.

Compiled by Les VE3-JAJ

CROSS COUNTRY SKI TOUR

The Cross Country Ski Tour went off as scheduled on Saturday morning, March 1 at Sibley Peninsula. The tour was 50 km in length with the option to drop out at the 20 and 30 km mark.

More than 500 skiers braved the minus 25 degree weather along with eight members of the LARC who were called on to provide communications for the event.

Between the start and finish were three check points in the bush.

#1 Manned by Dennis VE3-JAQ and Stan VE3-KRN. Did you two ever get out?????

#2 Manned by Ron VE3-KRJ and Ed VE3-KRP.

#3 Manned by Les VE3-JAJ and Bob VE3-KRL.

Tom VE3-EEW and Gary VE3-HHS monitored the three checkpoints from the main Pass Lake Road and assisted at the start and finish.

Thanks also to John VE3-HTM and Bob VE3-JAY who helped by monitoring from their home base stations. Special vote of thanks to Vlad VE3-KRV who 'manufactured' 3 ground plane antennas and patch cords for the event.

Just shows what teamwork will do. Great co-operation from all involved and our part of the operation went off without a single foul-up.

Many thanks to all.

..... 73 Bob VE3-KRL
event co-ordinator

MARCH HI -Q

NEWS FROM THE NORTH - NORTH WEST (Kenora)

Once again this year the Lake of the Woods Amateur radio club assisted the Kenora Rotary Club in their annual Snowarama, by providing two - way radio communications via two meters and the Kenora repeater.

Some 50 snowmachines and riders raised approx. \$8,000 for the crippled childrens society, down from 75 riders and \$10,000 in 1979.

The snowmobile course ran from the Jaffrey Mellick community club hall to Silver Lake, approximately 80 km N.E. of Kenora.

This year each rider was given a number for identification purposes and as he checked through each checkpoint the number was passed on to the control station. This procedure kept track of each individual and was a lesson learned from the 1979 event.

The base station, manned by Woody - JJA, Don - JJL, Andrew - JJx was the heart of the operation.

Portable stations were set up at the various check points with Walt - WD and Roger - BZR at Beauty Bay Resort. Roy - LE, Bart - JJK, and Phil - JJF set up shop at Silver Lake. Dale - EFY once again this year was the 2 - meter mobile, on a snow-machine, complete with 5/8 wave whip and set up back in the bush.

All stations reported excellent reception through the repeater even with Walt - WD and his plumbers nightmare, made from $\frac{1}{2}$ " pipe and a measuring tape for the radials.

The only problem was one broken leg and wrecked machine when one fellow got his ice cubes and gasoline mixed HI. As the saying goes " a good time was had by all"

Thanks to Dale for the info

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Although the Kenora repeater worked flawlessly throughout the above event, rumor has it that the beast will not be in use for much longer in the Kenora area.

The long awaited approval from the Wintario people has finally arrived and a new solid state repeater should be in service in Kenora sometime this summer. The GE rig will operate on a frequency set of 146.43mHz input - 147.03mHz output, so those of you travelling through that way check your rigs for the new frequency capability.

The reason for the change from 146.46/147.06 is to permit the Kenora operators to work into Winnipeg during Skip conditions on this frequency set.

Congratulations fellows on a job well done.

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Woddy -JJA made a trip to Montana this past month to do some skiing. Laid his G5RV antenna up on the side of a mountain bank and was getting 59 reports from the fellows back in Kenora. So hows the rig Woody?

Hither and Thither

Scuttlebutt has it that J.C. is leading poor unfortunate souls to their demise and closer to receiving the Fickle Finger. VE3DBI succumbed and is now the proud recipient of that ignominious award. For a whole year Harold will proudly (?) display (or hide) that beautiful piece of sculpture. Incidentally, Mr. Dow is quite active on 28 Mhz where he tests his power supply and tonsils by operating lock-to-talk!

VE3EEW is still struggling with the 40-meter yagi and true to Amateur tradition, Tom does most of his antenna work in the winter months.

Not to be outdone, VE3XJ went one further and put in a set of coax, heliax and rotor cable underground in January. Not only that, but moved the 2-meter G.P. from the tower to the pole and installed a mast on the tower in readiness for a ten meter erection of massive proportions.

VE3BCD, in addition to all his other activities is now toying with a TRS-80 Think-tank. Also gets on the H.F. (SSB) occasionally and is on the other end of Thunder Bay's only Ham U.H.F. system. Laurie has the land-line half of the Auto-patch while the R.F. originates at XJ's.

VE3ARN is basking in sunny Arizona and shows on ten meters once in a while if the golf course is crowded.

VE3EDZ is in the midst of the most ambitious do-it-yourself project since the repeater started. Ray is constructing an all-band, all solid state, digital readout, chrome-plated, sooper-dooper X-ceiver. The assembly is progressing very nicely with most of the P.C. boards assembled and some circuit testing already completed.

VE3KRM out Murillo way is active on the lower frequencies. Martin is literally giving away his Heathkit combo (DX-60, VFO and Commanche Rx). If anyone is interested in this station, give him a call at 935-2677.

VE3JAB is about to embark on a new exciting career. VE3KRY is looking around for a paddle for his Accu-keyer. Dave is getting fatigued by those back-to-back keys. OM Vic, VE3ECV recently tanned his dome in sunny Florida. VE3JAR figures the only way around Hydro line-noise is to go above those darn lines. Next stop - the clouds.

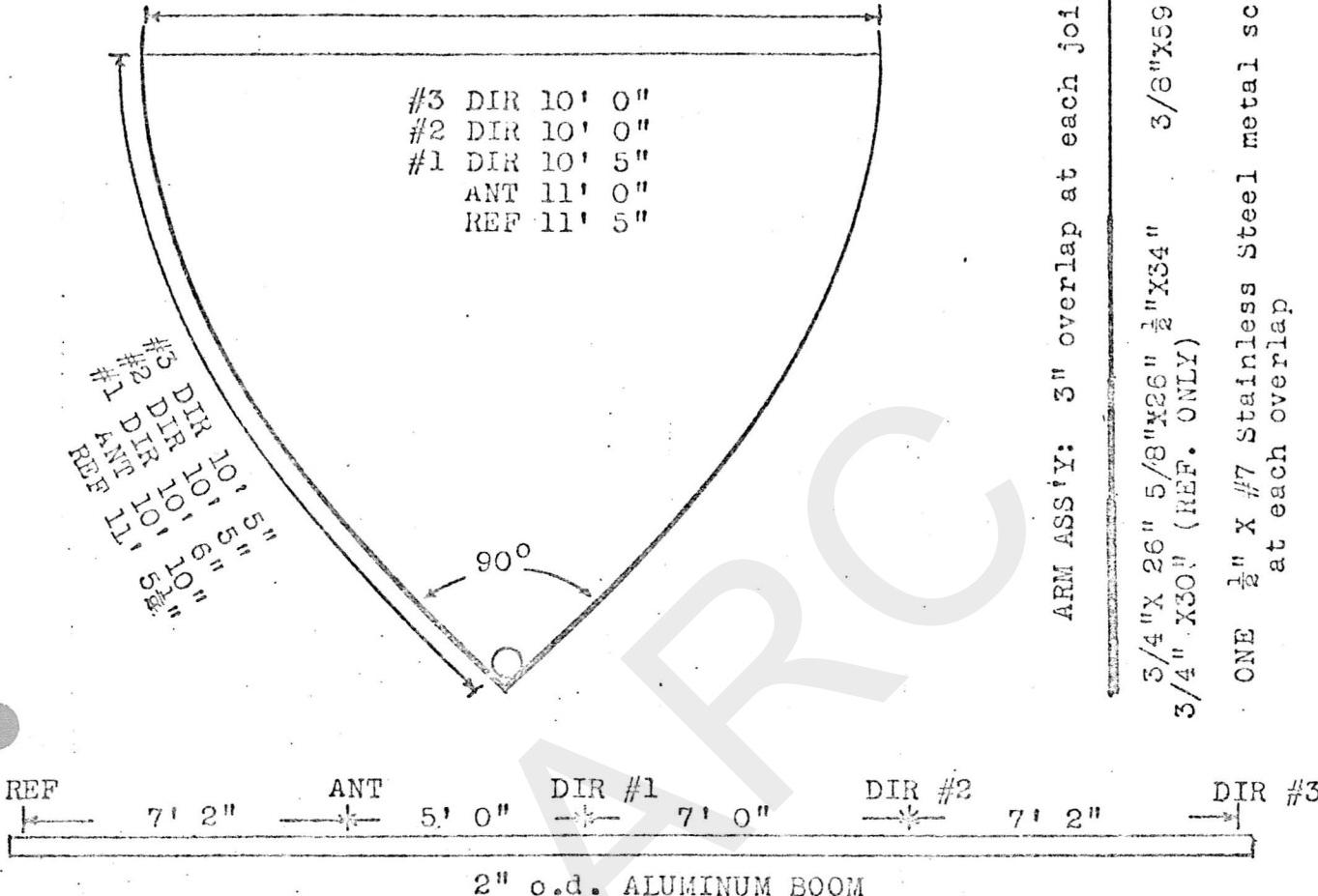
VE3AXL is sharpening his saws and straightening old nails, making ready for do-it-yourself carpentry this summer - and next - and next. VE3KRJ denies he is the cause of the TVI around the corner at the Bels. Must be that CBer down the street. VE3JAY is going to build a wall, ten feet high topped with barbed wire, lay in enough grub for a year, load the scatter gun and get ready for a long seige as Bob operates the contests in spite of his friendly neighbours.

VE3HFS is still decorating the shack and finding the problems of home-ownership. VE3DP recently acquired a Yaesu FT-901 DM and pounds brass on 40 and 20. VE3KRO is wondering about the follies of home-brew (solid-state variety). VE3JAJ is making notes on the side.

VE3JAQ recently did a great job giving a short talk to the Search & Rescue people on the Club's capabilities. Seems strange, but the first thing a person wants to do when gets a micro-processor is operate good old CW. Wonder what's wrong with ^{Lakehead Amateur Radio Club History Project?} the old way?

FIVE ELEMENT DELTA LOOP FOR TEN

by: Arthur Owen - W6WFB

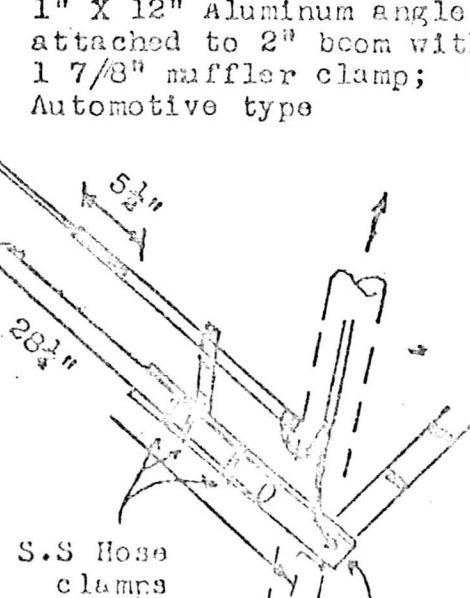
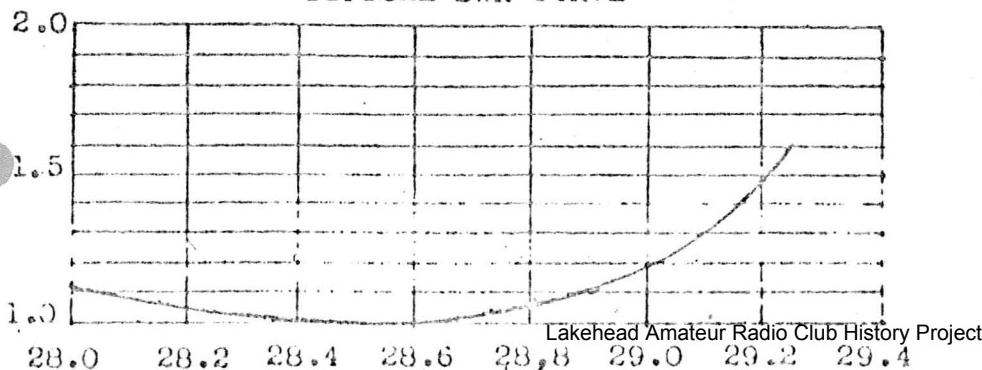


Gama match is made of a piece of 3/8" o.d. aluminum tubing inside a 5/8" o.d. 11" long piece of aluminum tubing inserted 5 $\frac{1}{2}$ " and insulated by 2" o.d. plastic tubing.

NOTE: All tubing diameters are o.d.
(outside diameter)

1" X 12" Aluminum angle attached to 2" boom with 1 7/8" muffler clamp; Automotive type

TYPICAL SWR CURVE



1/4" X 3/4" bolt, nut and lock washer typical at each pair of angles

Wade
1983

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Lakehead Amateur Radio Club History Project

My 5 element delta loop is 55' from the ground to the boom and numerous comparisons, in signal strength, have been made with another Amateur Station just 6 blocks away who is using a Wilson M-106 6 element 10 meter monabander at 80° and getting equal reports when running equal power. The Wilson M-106 has a 13 dB gain according to the specification sheet. It is not clear as to whether it is dbi or dbd.

This particular 5 element delta loop is mounted on a 2" o.d. x 27' long aluminum boom by means of 1" x 12" aluminum angle stock, 1 7/8" automotive type muffler clamps and stainless steel adjustable hose clamps. The arms are the end tips from a commercially made 16 element log periodic that was damaged and I was able to salvage most of the elements. Note that the elements, used in this antenna are graduated from 3/8" od to 3/4" od. This is to give maximum strength with minimum wind load.

The cross wire that joins the tips of the arms is #18 copperweld with soldering lugs at each end of the wire and joined to the tips of the arms by means of short pieces of 18 gauge soft aluminum bent to form a U shape around the arm tips and secured with a 10-32 bolt, nut and lock washer. Again the small size wire is used to present a low wind load.

The muffler clamps that I was able to obtain locally are not of the plated type. I suggest a liberal application of aluminum spray type paint on these before assembly and again after all adjusting and tightening is completed. A better and more professional method would be to use commercially made castings such as manufactured by Kirk electronics.

The boom to mast assembly, that I used, is the one most commonly made by HY-GAIN and is mounted immediately in front of the first director. At this point also is fastened a 1 1/2" x 36" aluminum up-right that supports the multi conductor guy wire that extends to approximately 6' from each end of the boom and secured with small cable clamps and adjusted with just enough tension to take the sag out of the boom.

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